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09/880,931	06/15/2001	Yasuhiro Gotou	Q64900	5681

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SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

BARAN, MARY C

ART UNIT PAPER NUMBER

2857

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,931

Applicant(s)

GOTOU ET AL.

Examiner

Mary Kate B Baran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 19-47 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 19-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Invention I, the invention best illustrated by claims 1-16 and 19-47, in Paper No. 4 is acknowledged.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 and 19-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign

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document and are replete with grammatical and idiomatic errors. With respect to claim 1, it is not clear if the phrase "provided with machine components" is referring to the machine component monitoring system, or the machine system. It is not clear if the claimed "rolling elements" are part of the machine components, the machine system or the machine component monitoring system. It is not clear if the phrase "associated with such sensor" is referring to the determining units, the condition status, or the machine component. It is not clear which data is used or how data is used "in reference to an output signal". It is not clear from the language in the claim, what these phrases are referring to. Further, the intended meaning of the phrase "connected with" is not distinctly claimed. The claimed term "others" is indefinite and does not specifically state what other forms of measurement could be collected.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 5-9, 13-16, 19-21, 23-25, 27-29 and 46 are rejected under 35

U.S.C. 102(e) as being anticipated by Quist et al. (U.S. Patent No. 6,199,018)

(hereinafter Quist).

Referring to claim 1, Quist teaches a machine component monitoring system for monitoring a plurality of machine components in a machine system each machine component having rolling elements (see Quist, column 3 lines 29-33), the system comprising: a plurality of determining units (see Quist, Figure 1) each connected to a plurality of sensors (see Quist, Figure 2B and column 9 lines 7-10) and a control means (see Quist, column 4 lines 12-15); each sensor associated with a machine component and used to detect a signal resulting from passage of the rolling elements in the machine component (see Quist, column 3 lines 29-33), each determining unit operable to determine, according to a predetermined process set-up condition status (see Quist, column 6 lines 7-15), the presence or absence of an abnormality (see Quist, column 8 lines 55-59) or the lifetime (see Quist, column 5 lines 7-10) of the machine component based on an output signal from the associated sensor (see Quist, column 8 lines 55-59); and said control means being operable to collect results of determination performed by each of the determining units (see Quist, column 4 lines 15-17).

Referring to claim 2, Quist teaches that the output signal from the associated sensor is in a waveform (see Quist, column 14 lines 13-17).

Referring to claim 5, Quist teaches that each of the determining units has a capability of detecting presence or absence an abnormality resulting from the determining unit itself or a sensor waveform abnormality (see Quist, column 4 lines 22-40).

Referring to claim 6, Quist teaches that the control means makes a transmission request sequentially to the determining units and each determining unit transmit a result of determination to the control means in response to the transmission request (see Quist, column 4 lines 15-17).

Referring to claim 7, Quist teaches that the control means has a capability of commanding setting and changing of the process set-up condition for each determining unit and each determining unit is capable of changing the process set-up condition according to the command from the control means (see Quist, column 4 lines 41-55).

Referring to claims 8 and 9, Quist teaches that each determining unit has a plurality of waveform processing means for processing the waveform according to different waveform processing techniques and has a capability of selecting one of the waveform processing means that is to be used for processing the sensor waveform, and the control means has a capability of applying a selection command necessary to select one of the waveform processing means for the particular determining unit or for each sensor (see Quist, column 21 lines 40-58, column 23 lines 36-53 and column 30 lines 3-9).

Referring to claim 13, Quist teaches that the control means has an automatic monitoring mode in which a result of determination is acquired by sequentially issuing a transmission request to the respective determining unit to send the result of

determination (see Quist, column 4 line 64 – column 5 line 3) and the terminal operated mode is a mode in which a response is acquired by making a transmission request to the respective determining unit to send the result of determination and information other than the result of determination (see Quist, column 5 lines 10-15).

Referring to claim 14, Quist teaches that each determining unit captures as digital data the waveform which is output from each sensor connected therewith (see Quist, column 14 line 64 – column 15 line 6), and the control means includes a waveform data storage means for storing the digital data captured by each determining unit (see Quist, column 16 lines 23-31).

Referring to claim 15, Quist teaches a maintenance information generating means for generating predetermined maintenance information associated with the machine component, based on a result of determination performed by each determining unit (see Quist, column 5 lines 7-10).

Referring to claim 16, Quist further teaches information processing means positioned at a location remote from the control means and connected to the control means through a communication network (see Quist, column 4 lines 12-15), wherein the control means has a capability of collecting a result of determination performed by each determining unit (see Quist, column 3 lines 49-56), and a waveform input to each determining unit, said information processing means including a remote data collecting

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means for collecting the result of determination and the waveform collected from each determining unit (see Quist, column 4 lines 15-17).

Referring to claim 19, Quist teaches a machine component monitoring and diagnosing system for monitoring and diagnosing a machine component having rolling elements (see Quist, column 3 lines 29-33), the system comprising: a sensor for detecting a factor associated with lifetime of a machine component incorporated in a machine used at a business establishment of a client corporation (see Quist, column 5 lines 7-10); a transmitting means for transmitting information detected by the sensor or processed sensor information to a line (see Quist, column 4 lines 15-17); a receiving means installed at a business establishment of a manufacturing and selling corporation for receiving the sensor information transmitted through the line (see Quist, column 4 lines 12-17); a diagnosing means for diagnosing a state of the lifetime of the machine component in reference to the sensor information received by the receiving means (see Quist, column 5 lines 7-10); a transmitting means for transmitting diagnosis result information given by the diagnosing means to the line (see Quist, column 5 lines 10-15); and a receiving means installed at the business establishment of the client corporation for receiving the diagnosis result information transmitted through the line (see Quist, column 5 lines 10-15).

Referring to claim 20, Quist teaches a machine component monitoring and diagnosing system for monitoring and diagnosing a machine component having rolling

elements (see Quist, column 3 lines 29-33), the system comprising: a receiving means installed at a business establishment of a manufacturing and selling corporation for receiving through a line information detected by a sensor for detecting a factor associated with lifetime (see Quist, column 5 lines 7-10) of the machine component incorporated in a machine used by a client corporation located at a remote place (see Quist, column 4 lines 12-17); a diagnosing means for diagnosing a state of the lifetime of the machine component in reference to the sensor information received by sensor information receiving means (see Quist, column 5 lines 7-10); and a transmitting means for transmitting information on a result of diagnosis by the diagnosing means to the line (see Quist, column 5 lines 10-15).

Referring to claim 21, Quist teaches that the transmitting means includes an information collecting section for collecting the information detected by the sensors (see Quist, column 3 lines 49-56), and an information transmitting section for transmitting the collected information to the line (see Quist, column 4 lines 12-17).

Referring to claim 23, Quist teaches that the sensor is operable to detect a vibration waveform (see Quist, column 8 lines 55-59) and a temperature (see Quist, column 3 lines 29-33).

Referring to claims 24 and 25, Quist teaches that the diagnosing means comprises a database (see Quist, column 5 lines 46-50) wherein specifications for each

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type of machine component, examples of diagnosis, and machine component environments are registered (see Quist, column 5 lines 36-45).

Referring to claim 27, Quist teaches that the transmitting means and the receiving means is capable of performing a bi-directional communication, and the transmitting means transmits the sensor information in response to a request signal sent from the sensor information receiving means (see Quist, column 7 lines 3-11).

Referring to claim 28, Quist teaches that the transmitting means transmits the sensor information on a regular basis and transmits it even when a predetermined abnormality signal is received (see Quist, column 3 line 66 – column 4 line 8).

Referring to claim 29, Quist teaches that the machine in the business establishment of the client corporation is a machine having a plurality of shafts and wherein the machine component to be detected by the sensor is a bearing supporting each of the shafts (see Quist, column 3 lines 29-33), said transmitting means transmitting sensor information, detected from the plural bearings, to the line (see Quist, column 4 lines 12-17).

Referring to claim 46, Quist teaches a machine component monitoring and diagnosing method for monitoring and diagnosing a machine component having rolling elements (see Quist, column 3 lines 29-33) through a computer network, at a business

establishment of a corporation manufacturing and selling the machine component (see Quist, column 4 lines 12-21), the method comprising: receiving through a line a factor associated with the lifetime of a machine component incorporated in a machine (see Quist, column 5 lines 7-10) used by a client corporation at a remote location (see Quist, column 5 lines 10-15); diagnosing the lifetime of the machine component based on the received sensor information (see Quist, column 5 lines 10-15); and transmitting diagnosis information, obtained as a result of diagnosis, to the client corporation through the line (see Quist, column 5 lines 10-15).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist) in view of Hayami et al. (U.S. Patent No. 6,064,002) (hereinafter Hayami).

Referring to claim 10, Quist teaches all the features of the claimed invention except for a sheathed sensor cable, the sheath being at least one of water proof, dust proof, rust proof, moisture proof, and resistant to oil, heat and electromagnetic noise.

Hayami teaches an insulated cable having a waterproof sheath (see Hayami, column 4 lines 52-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Hayami because waterproofing the sensor cable would have allowed the skilled artisan to obtain more accurate results as water damage could deteriorate the signal, add noise or prevent a signal from being sent.

6. Claims 30, 31-34, 37, 39-41, and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist) in view of Peters (U.S. Patent No. 5,769,269).

Referring to claim 30, Quist teaches a machine component monitoring and diagnosing system (see Quist, column 3 lines 29-33) which comprises: a sensor for detecting a factor associated with the lifetime of a machine component incorporated in a machine used at a business establishment of a client corporation (see Quist, column 5 lines 7-10); a transmitting means for transmitting information detected by the sensor or processed sensor information to a line (see Quist, column 3 line 66 – column 4 line 8); a sensor information receiving means installed at a business establishment for receiving the sensor information transmitted through the line (see Quist, column 4 lines 15-17); a diagnosing means for diagnosing a state of the lifetime of the machine component in reference to information received by the sensor information receiving means (see Quist, column 5 lines 7-10); a transmitting means for transmitting information to the line (see Quist, column 3 line 66 – column 4 line 8); and a receiving means installed at the business establishment of the client corporation for receiving information (see Quist,

column 4 lines 15-17). Quist does not teach a merchandise information adding means for generating merchandise information associated with the machine component and for adding this merchandise information to the diagnosis result information or merchandise information.

Peters teaches a merchandise information adding means for generating merchandise information associated with the machine component and for adding this merchandise information to the diagnosis result information or merchandise information (see Peters, column 10 lines 61-64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Peters because incorporating merchandise information with the diagnostic information would have allowed the skilled artisan to immediately address a problem (see Peters, column 10 lines 61-64) as well as communicate the reason for ordering the component.

Referring to claim 31, Quist teaches a machine component monitoring and diagnosing system for monitoring and diagnosing a machine component having rolling elements (see Quist, column 3 lines 29-33), the system comprising: a sensor information receiving means installed at a business establishment for receiving through a line a factor associated with the lifetime of a machine component (see Quist, column 5 lines 7-10) incorporated in a machine used at a business establishment of a client corporation at a remote location (see Quist, column 4 lines 12-21); a diagnosing means for diagnosing a state of the lifetime of the machine component in reference to the

sensor information (see Quist, column 3 lines 49-56); and a diagnosis result information transmitting means for transmitting information to the line (see Quist, column 3 line 66 – column 4 line 5). Quist does not teach a merchandise information adding means for generating merchandise information associated with the machine component and for adding this merchandise information to the diagnosis result information or merchandise information.

Peters teaches a merchandise information adding means for generating merchandise information associated with the machine component and for adding this merchandise information to the diagnosis result information or merchandise information (see Peters, column 10 lines 61-64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Peters because incorporating merchandise information with the diagnostic information would have allowed the skilled artisan to immediately address a problem (see Peters, column 10 lines 61-64) as well as communicate the reason for ordering the component.

Referring to claim 32, Quist teaches all the features of the claimed invention except that the merchandise information includes price information and delivery date information.

Peters teaches that the merchandise information includes price information (see Peters, column 10 lines 42-51) and delivery date information (see Peters, column 10 lines 61-64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Peters because delivery information would have allowed the skilled artisan determine the length of time it would take for a buyer to receive the needed component to minimize machine failure.

Referring to claim 33, Quist further teaches that the transmitting means is capable of conducting a bi-directional communication and capable of receiving information (see Quist, column 7 lines 6-11). Quist does not teach ordering information.

Peters discloses ordering information (see Peters, column 10 lines 61-64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Peters because transmitting ordering information would have allowed the skilled artisan to keep a record of the components that have been ordered.

Referring to claim 34, Quist teaches all the features of the claimed invention except for an order processing means for generating delivery arrangement information according to contents ordered in the agreement information that is received by the diagnosis information transmitting means.

Peters discloses an order processing means for generating delivery arrangement information according to contents ordered in the agreement information (see Peters, column 10 lines 61-64).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Peters because transmitting ordering information would have allowed the skilled artisan to keep a record of the components that have been ordered and when they will be delivered.

Referring to claim 37, Quist teaches that the transmitting means includes an information collecting section for collecting the information detected by the sensors (see Quist, column 3 lines 49-56), and an information transmitting section for transmitting the collected information to the line (see Quist, column 4 lines 12-17).

Referring to claim 39, Quist teaches that the sensor is operable to detect a vibration waveform (see Quist, column 8 lines 55-59) and a temperature (see Quist, column 3 lines 29-33).

Referring to claims 40 and 41, Quist teaches that the diagnosing means comprises a database (see Quist, column 5 lines 46-50) wherein specifications for each type of machine component, examples of diagnosis, and machine component environments are registered (see Quist, column 5 lines 36-45).

Referring to claim 43, Quist teaches that the transmitting means and the receiving means is capable of performing a bi-directional communication, and the

transmitting means transmits the sensor information in response to a request signal sent from the sensor information receiving means (see Quist, column 7 lines 3-11).

Referring to claim 44, Quist teaches that the transmitting means transmits the sensor information on a regular basis and transmits it even when a predetermined abnormality signal is received (see Quist, column 3 line 66 – column 4 line 8).

Referring to claim 45, Quist teaches that the machine in the business establishment of the client corporation is a machine having a plurality of shafts and wherein the machine component to be detected by the sensor is a bearing supporting each of the shafts (see Quist, column 3 lines 29-33), said transmitting means transmitting sensor information, detected from the plural bearings, to the line (see Quist, column 4 lines 12-17).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Hoth et al. teach a method and apparatus for performing pre-emptive maintenance on operating equipment.

(b) Woods et al. teach a method and apparatus for improved inspection and classification of attributes of a workpiece.

(c) Wang et al. teach a machine fault diagnostics system and method.

(d) Merel teaches a computer-implemented system for controlling resources and policies.

(e) Johnson et al. teach a smart remote monitoring system and method.

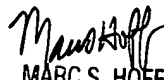
(f) Pung et al. teach a method and apparatus for analyzing machine control systems.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B Baran whose telephone number is (703) 305-4474. The examiner can normally be reached on Monday - Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (703) 308-1677. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

MKB


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800